



**NORTH DAKOTA**  
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MEMO TO : North Dakota Medical Radioactive Material Licensees

FROM : Terry L. O'Clair, P.E.  
Director  
Division of Air Quality *1/20*

RE : U.S. Nuclear Regulatory Commission Information Summary  
2004-17, Revision 1 "Revised Decay-In-Storage,  
Provisions For The Storage of Radioactive Waste-  
Containing By-product Material"

DATE : November 3, 2005

Enclosed is a copy of the United States Nuclear Regulatory Commission (NRC) Information Summary regarding revised decay-in-storage provisions for the storage and treatment of radioactive waste. This summary discusses changes to the decay-in-storage provisions for radioactive material with a half-life of 120 days or less. These changes are the result of recent regulatory changes made by the NRC to 10 CFR. North Dakota is in the process of considering comparable amendments to the North Dakota Radiological Health Rules. These amendments would include adoption of the new requirements affecting waste processing by decay-in-storage.

Under an agreement with the U.S. Nuclear Regulatory Commission (NRC), North Dakota has assumed regulatory authority of certain uses of radioactive material within its borders. Regulations comparable to 10 CFR are contained in North Dakota Administrative Code 33-15. North Dakota maintains compatibility with the NRC by having comparable regulations and conducting adequate enforcement to maintain compliance.

As indicated in the summary, it is expected that you will review this information for applicability to your licensed activities and consider actions, as appropriate, to ensure the safe and legal use of radioactive material in the State of North Dakota.

This notice is for your information only. No specific action nor written response is required. If you have any questions concerning this issue, please contact the Radiation Control Program at 701.328.5188.

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555

September 27, 2005

**NRC REGULATORY ISSUE SUMMARY 2004-17, REVISION 1  
REVISED DECAY-IN-STORAGE PROVISIONS FOR THE STORAGE OF  
RADIOACTIVE WASTE CONTAINING BYPRODUCT MATERIAL**

**ADDRESSEES**

All licensees regulated under 10 CFR Parts 30, 32, 33, 35, 39, and 50.

**INTENT**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform all addressees of requirements applicable to decay-in-storage of radioactive waste containing radioactive material with half-lives of less than or equal to 120 days. Revision 1 supersedes RIS 2004-17 in its entirety. It is expected that recipients will review this information for applicability to their programs. No specific action nor written response is required.

**BACKGROUND**

On October 24, 2002, the revised regulations in Part 35, "Medical Use of Byproduct Material," became effective. Revised 10 CFR 35.92, "Decay-in-storage," included a significant change in eliminating the requirement to hold radioactive waste for a period of 10 half lives before disposal. The regulation as revised is more risk-informed and performance based and does not require or specify a holding period before disposal of medical radioactive waste, provided that certain conditions are met and that the final radiation survey determines that the exposure rates of the waste cannot be distinguished from the background radiation levels. Currently, many medical licensees have a license condition requiring them to hold non-medical radioactive waste for decay a minimum of 10 half-lives. This condition imposes a more restrictive requirement on decay-in-storage for non-medical wastes containing radioactive material, than for medical wastes containing radioactive material. As a result, several medical licensees have requested that their licenses be amended to allow the decay-in-storage and processing of their non-medical radioactive waste in a manner similar with the performance-based requirements in Section 35.92.

**ML052720099**

## SUMMARY OF ISSUE

There are two standard license conditions (License Conditions 140 and 142) in Appendix E of the NUREG 1556, Volume 20, "Consolidated Guidance About Materials Licensees - Guidance About Administrative Licensing Procedures," that govern decay-in-storage. License Condition 140 is designed for decay-in-storage of waste by non-medical licensees, while License Condition 142 is designed for decay-in-storage of non-medical waste for medical licensees. Both License Conditions 140 and 142 allow decay-in-storage for wastes containing radioactive material with half-lives "less than or equal to 120 days." However, the revised 10 CFR 35.92, which authorizes decay-in-storage for medical waste, only authorizes decay-in-storage for byproduct material with half-lives "less than 120 days."

The original RIS (i.e., RIS 2004-17, dated November 23, 2004) incorporated the 10 CFR 35.92 provision of allowing the holding of waste with half-lives "less than 120 days," instead of waste with half-lives "less than **or equal to** 120 days" as provided in License Conditions 140 and 142. In addition, the original RIS did not include well-logging licensees (i.e., licensees regulated under Part 39), although the decay-in-storage provisions also apply to them. As noted in the "Addressees" section, these licensees are included in this RIS.

This revision to RIS-2004-17, "Revised Decay-in-Storage Provisions for the Storage of Radioactive Waste Containing Byproduct Material," informs addressees that the standard License Conditions 140 and 142 will retain the existing half-life criterion of "less than **or equal to** 120 days" for radioactive waste generated from non-medical use by all licensees, including Part 35 licensees. For radioactive waste generated from medical uses by Part 35 licensees (i.e., medical use licensees), 10 CFR 35.92 will govern in authorizing decay-in-storage only for byproduct material with half-lives "less than 120 days."

In addition to meeting the half-life requirement, waste to be processed as decay-in-storage waste must meet the following conditions:

- The waste must be held in storage until the radiation exposure rate cannot be distinguished from background radiation levels;<sup>1</sup>
- The waste must be monitored at the container's surface and with no interposed shielding;
- The waste must be monitored with an appropriate radiation-detection instrument set at its most sensitive scale;

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<sup>1</sup> The License Condition 140 stipulation that decay-in-storage waste be held for 10 half-lives will be deleted. Instead, this waste must be held until the exposure rate is indistinguishable from background radiation exposure. This approach is in keeping with the performance-based intent of Section 35.92.

- The licensee must obliterate or remove all radiation labels prior to disposal <sup>2</sup>; and
- Records of the disposal are maintained.

#### 10 CFR 35.92 Amendment

NRC staff is aware that 35.92 requires revision to allow decay-in-storage provisions for medical waste with half-lives less than or equal to 120 days. (The current rule addresses a decay period of less than 120 days.) Staff is evaluating mechanisms to resolve this issue.

#### Detecting Low-Energy Beta Emitting Isotopes

Low levels of some beta emitters, such as sulfur-35, are difficult to detect. Therefore, to assure that the requirement for holding radioactive waste in storage, until the radiation exposure rate cannot be distinguished from background levels is met, licensees should perform surveys for these materials in a low background radiation area. For example, areas such as radioactive waste areas and hot labs should be avoided. Furthermore, to ensure proper release of decay-in-storage byproduct waste, licensees must carefully select the appropriate radiation survey instrument, and must ensure it is properly and currently calibrated. For guidance on selecting the proper radiation-detection equipment and ensuring it is properly and currently calibrated, licensees may refer to NUREG 1556, Volume 7, Appendix M, "Consolidated Guidance About Materials Licenses - Program Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope." This document is accessible at the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/>.

#### Process for Amending Licenses for Decay-in-Storage

All new licenses granted under Part 35, listing byproduct material with half-lives less than 120 days, will be issued with the authority to process radioactive waste in accordance with the decay-in-storage provision in 35.92. All new licenses granted under Parts 30, 32, 33, and 39, will be issued with authority to process radioactive waste consistent with this revision. All existing similar Parts 30, 32, 33, 35, and 39 licenses will be written to incorporate the decay-in-storage provision at the time of license renewal or amendment, whichever occurs first. Licensees who desire to use the decay-in-storage provision in the near future must submit an amendment request and receive the amended license before implementation of the less restrictive decay-in-storage provisions.

#### Decay-in-Storage for Reactor Licensees

The NRC staff has considered whether the provisions of the decay-in-storage option would be applicable to reactor licensees and believes this option would present some difficulties to them. Power reactors generate a mix of byproduct materials with a wide range of half-lives. Because

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<sup>2</sup> An exception to this requirement is labels on materials that are within containers and that will be managed as biomedical waste after release from the licensee.

of these mixtures, a power reactor licensee would have to separate out the short half-life materials from the long half-life materials. This generally is neither easy nor cost-effective.

Although research and test reactors (RTRs) also generate mixed byproduct materials with a wide range of half-lives, some RTRs generate byproduct materials that are more distinct and are short-lived. Notwithstanding these considerations, should power reactor and/or RTR licensees desire to pursue the decay-in-storage option, the provisions of this RIS would be applicable to such reactor licensees.

#### **FEDERAL REGISTER NOTIFICATION**

A notice of opportunity for public comment on this RIS was not published in the *Federal Register* because this RIS is informational, and does not represent a departure from current regulatory requirements.

#### **SMALL BUSINESS REGULATORY ENFORCEMENT FAIRNESS ACT**

NRC has determined that this action is not subject to the Small Business Regulatory Enforcement Fairness Act of 1996.

#### **RELATED GENERIC COMMUNICATIONS**

The generic communication previously released on this subject, on November 23, 2004, is RIS 2004-17, "Revised Decay-in-Storage Provisions for the Storage of Radioactive Waste Containing Byproduct Material."

#### **PAPERWORK REDUCTION ACT STATEMENT**

This RIS does not contain information collections and, therefore, is not subject to the requirements of the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq.).

This RIS requires no specific action nor written response. If you have any questions about this RIS, please contact the technical contacts listed below, or the appropriate regional office.

/RA/

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Attachment: "List of Recently Issued NMSS Generic Communications"